

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) An apparatus for controlling valve actuation in an internal combustion engine having intake and exhaust valves, wherein the apparatus controls valve actuation of the intake valve and valve actuation of the exhaust valve each to be a corresponding predetermined target valve actuation, the apparatus ~~being characterized by~~ comprising:

first computation ~~means~~ section, wherein, according to an operation state of the engine, the first computation ~~means~~ section computes the target valve actuation of a first valve and a target valve overlap amount of the valves, the first valve being one of the intake valve and the exhaust valve, and wherein, based on the computed target valve overlap amount and an actual valve actuation of the first valve, the first computation ~~means~~ section computes the target valve actuation of a second valve, the second valve being the other one of the intake valve and the exhaust valve;

second computation ~~means~~ section, wherein, according to the operation state of the engine, the second computation ~~means~~ section computes the target valve actuation of the intake valve and the target valve actuation of the exhaust valve; and

selecting ~~means~~ section that selects, as the target valve actuation of the intake valve and the target valve actuation of the exhaust valve, one of the computation result of the first computation ~~means~~ section and the computation result of the second computation ~~means~~ section according to the operation state of the engine, and wherein the selecting ~~means~~ section selects the computation result of the second computation ~~means~~ section when load on the engine is no less than a predetermined value.

2. (currently amended) An apparatus for controlling valve actuation in an internal combustion engine having intake and exhaust valves, wherein the apparatus controls valve actuation of the intake valve and valve actuation of the exhaust valve each to be a corresponding predetermined target valve actuation, the apparatus ~~being characterized by~~ comprising:

first computation ~~means~~ section , wherein, according to an operation state of the engine, the first computation ~~means~~ section computes the target valve actuation of a first valve and a target valve overlap amount of the valves, the first valve being one of the intake valve and the exhaust valve, and wherein, based on the computed target valve overlap amount and an actual valve actuation of the first valve, the first computation ~~means~~ section computes the target valve actuation of a second valve, the second valve being the other one of the intake valve and the exhaust valve;

second computation ~~means~~ section, wherein, according to the operation state of the engine, the second computation ~~means~~ section computes the target valve actuation of the intake valve and the target valve actuation of the exhaust valve; and

selecting ~~means~~ section that selects, as the target valve actuation of the intake valve and the target valve actuation of the exhaust valve, one of the computation result of the first computation ~~means~~ section and the computation result of the second computation ~~means~~ section according to the operation state of the engine, and wherein the selecting ~~means~~ section selects the computation result of the first computation ~~means~~ section when the valve actuation of the intake valve and the valve actuation of the exhaust valve each have converged on the corresponding target valve actuation and the valve overlap amount of the valves has converged on the target valve overlap amount.

3. (currently amended) The apparatus according to claim 2, ~~characterized in that:~~ wherein

       the selecting ~~means~~ section selects the computation result of different computation ~~means~~ section in a case where the valve overlap amount is made smaller than it is at present and in a case where the valve overlap amount is made greater than it is at present, and

wherein, when the valve actuation of the intake valve and the valve actuation of the exhaust valve each have converged on the corresponding target valve actuation and the valve overlap amount of the valves has converged on the target valve overlap amount, the selecting ~~means~~ section selects the computation result of the first computation ~~means~~ section irrespective of whether the valve overlap amount is made smaller or greater than it is at present.

4. (currently amended) An apparatus for controlling valve actuation in an internal combustion engine having intake and exhaust valves, wherein the apparatus controls valve actuation of the intake valve and valve actuation of the exhaust valve each to be a corresponding predetermined target valve actuation, the apparatus ~~being characterized by~~ comprising:

first computation ~~means~~ section , wherein, according to an operation state of the engine, the first computation ~~means~~ section computes the target valve actuation of a first valve and a target valve overlap amount of the valves, the first valve being one of the intake valve and the exhaust valve, and wherein, based on the computed target valve overlap amount and an actual valve actuation of the first valve, the first computation ~~means~~ section computes the target valve actuation of a second valve, the second valve being the other one of the intake valve and the exhaust valve;

second computation ~~means~~ section, wherein, according to the operation state of the engine, the second computation

~~means~~ section computes the target valve actuation of the intake valve and the target valve actuation of the exhaust valve; and

selecting ~~means~~ section that selects, as the target valve actuation of the intake valve and the target valve actuation of the exhaust valve, one of the computation result of the first computation ~~means~~ section and the computation result of the second computation ~~means~~ section according to the operation state of the engine, and wherein the selecting ~~means~~ section selects the computation result of the second computation ~~means~~ section when the valve actuation of the intake valve and the valve actuation of the exhaust valve are both changed to increase or reduce the valve overlap amount.

5. (currently amended) An apparatus for controlling valve actuation in an internal combustion engine having intake and exhaust valves, wherein the apparatus controls valve actuation of the intake valve and valve actuation of the exhaust valve each to be a corresponding predetermined target valve actuation, the apparatus ~~being characterized by comprising:~~

primary process control ~~means~~ section, wherein the primary process control ~~means~~ section computes the target valve actuation of a first valve according to an operation state of the engine, the first valve being one of the intake valve and the exhaust valve, and the primary process control ~~means~~ section controls the valve actuation of the first valve to be the computed valve actuation; and

secondary process control ~~means~~ section, wherein the secondary process control ~~means~~ section computes the target valve actuation of a second valve based on a target valve overlap amount of the valves, which overlap amount is computed according to the operation state of the engine, and an actual valve actuation of the first valve, the second valve being the other one of the intake valve and the exhaust valve, and the

secondary process control ~~means~~ section controls the valve actuation of the second valve to be the computed valve actuation,

wherein, when one of the valve actuation of the intake valve and the valve actuation of the exhaust valve is changed to increase the valve overlap amount and the other valve actuation is changed to reduce the valve overlap amount, the primary process control ~~means~~ section and the secondary process control ~~means~~ section execute the valve actuation control by setting the valve that is related to the reduction of the valve overlap amount as the first valve and setting the valve that is related to the increase of the valve overlap amount as the second valve.

6. (currently amended) The apparatus according to claim 5, ~~characterized by~~ further comprising:

discrete process control ~~means~~ section, wherein the discrete process control ~~means~~ section computes the target valve actuation of the intake valve and the target valve actuation of the exhaust valve according to the operation state of the engine, and the discrete process control ~~means~~ section controls the valve actuation of each valve to be the corresponding target valve actuation, and

wherein the valve actuation control by the primary process control ~~means~~ section and the secondary process control ~~means~~ section, and the valve actuation control by the discrete process control ~~means~~ section are selectively executed according to the operation state of the engine.

7. (currently amended) An apparatus for controlling valve actuation in an internal combustion engine having intake and exhaust valves, wherein the apparatus controls valve timing of the intake valve and valve timing of the exhaust valve each to

be a corresponding predetermined target valve timing, the apparatus ~~being characterized by~~ comprising:

primary process control ~~means~~ section, wherein the primary process control ~~means~~ section computes the target valve timing of a first valve according to an operation state of the engine, the first valve being one of the intake valve and the exhaust valve, and the primary process control ~~means~~ section controls the valve timing of the first valve to be the computed valve timing; and

secondary process control ~~means~~ section, wherein the secondary process control ~~means~~ section computes the target valve timing of a second valve based on a target valve overlap amount of the valves, which overlap amount is computed according to the operation state of the engine, and an actual valve timing of the first valve, the second valve being the other one of the intake valve and the exhaust valve, and the secondary process control ~~means~~ section controls the valve timing of the second valve to be the computed valve timing,

wherein, when the valve timing of the intake valve and the valve timing of the exhaust valve are both being advanced, the primary process control ~~means~~ section and the secondary process control ~~means~~ section execute the valve timing control by setting the exhaust valve as the first valve and setting the intake valve as the second valve,

wherein, when the valve timing of the intake valve and the valve timing of the exhaust valve are both being delayed, the primary process control ~~means~~ section and the secondary process control ~~means~~ section execute the valve timing control by setting the intake valve as the first valve and setting the exhaust valve as the second valve.